CLAIMS

What is claimed is:

1. A method of compressing an image, comprising the steps of:

dividing the image into plural planes; and

compressing each plane with a corresponding selected compression method.

2. The method according to Claim 1, further comprising the steps of:

replacing colors in at least one of said plural planes with at least one replacement color; and

adjusting at least one other of said plural planes, at locations corresponding to the replaced colors, with error values representing a difference between the replaced colors and the corresponding replacement color.

3. The method according to Claim 2, further comprising the step of:

maintaining a selector plane that identifies one of a plane of said plural planes and a combination of said plural planes that maintain pixels representing the image.

4. The method according to Claim 1, wherein:

said step of dividing comprises dividing the image into at least an upper plane and a lower plane; and

said method further comprises the steps of,

replacing colors in said upper plane with a replacement color; and

adjusting said lower plane at locations corresponding to a respective replaced color with an error value representing a difference between the respective replaced color and the replacement color.

5. The method according to Claim 4, further comprising the step of:

maintaining a selector plane that identifies whether any specific pixel of said upper plane or a combination of the specific pixel and an adjusted lower plane pixel represent corresponding pixels in the image.

6. The method according to Claim 5, further comprising the step of compressing the selector plane.

7. The method according to Claim 4, wherein:

said step of replacing comprises,

selecting a color of said upper plane; and

replacing any non-selected colors in said upper plane with the selected color.

8. The method according to Claim 4, wherein said selected color is an average of colors contained in said upper plane.

9. The method according to Claim 4, further comprising the step of:

adjusting a level of color in said upper plane to a level such that said step of adjusting said lower plane does not overflow a number of bits utilized to represent said lower level.

10. The method according to Claim 1, further comprising the steps of:

determining an average color of a number of colors in an upper plane of said plural planes;

replacing each color in said upper plane with said average color; and

adjusting a lower plane at locations corresponding to a respective replaced color of said upper plane with an error value, so that an addition of said lower and upper planes at a location corresponding to a replaced color equals the replaced color.

11. The method according to Claim 1, wherein said step of dividing includes the step of:

adjusting an amount of detail of the image contained in pixels of each plane based on a predetermined factor of corresponding pixels in said image.

12. The apparatus according to Claim 11, wherein:

said step of adjusting an amount of detail, comprises,

adjusting an amount of detail of the image contained in pixels of an upper plane based on a degree of color in said corresponding pixels matching a background color of said image.

13. The apparatus according to Claim 11, wherein:

said step of adjusting an amount of detail, comprises,

adjusting an amount of detail of the image contained in pixels of an upper plane based on an amount of fine edge positions in said corresponding pixels and maintaining multibit selector plane.

14. The method according to Claim 11, further comprising the step of:

maintaining a multibit selector plane identifying an amount of detail of the image maintained in each of said plural planes.

15. A method for reconstruction of an image, comprising the steps of:

selecting pixels of the image to be reconstructed from plural planes of data representing the image.

16. The method according to Claim 15, wherein:

said step of selecting, comprises,

selecting pixels of the image from one of a single plane and an arithmetic operation of pixels from more than one of said plural planes.

17. The method according to Claim 15, wherein:

said step of selecting comprises the step of,

selecting pixels based on a selector plane that identifies, for each part of the original image, whether the original image information is maintained in an upper plane or a combination of the upper and at least one lower plane of said plural planes.

18. The method according to Claim 15, further comprising the step of:

decompressing said plural planes, including at least an upper plane and a lower plane, from a compressed state.

19. The method according to Claim 18, wherein:

said step of selecting comprises,

combining said upper and lower decompressed planes to produce an additive image, and

selecting pixels of the reconstructed image from corresponding pixel locations of one of said decompressed upper plane and said additive image.

20. The method according to Claim 18, wherein:

said step of decompressing includes the step of,

decompressing a selector plane maintaining information identifying which pixels of each other decompressed plane are representative of pixels of the reconstructed image; and

said step of selecting comprises,

selecting pixels for the reconstructed image based on the selector plane information.

21. An apparatus for representing a source image, comprising:

a divider configured to divide the source image into at least an upper and a lower plane;

a color replacement device configured to replace colors in said upper plane with a selected color; and

an error device configured feed pixel errors in said upper plane resulting from said color replacement into corresponding pixel locations in said lower plane.

22. The apparatus according to Claim 21, further comprising:

a selector device configured to build a selector plane identifying pixels of said source image contained in said upper plane and a combination of said upper plane and said lower plane.

23. The apparatus according to Claim 22, further comprising:

a compressor configured to compress each of said upper, lower, and selector planes with a corresponding compression method.

24. The apparatus according to Claim 23, wherein each corresponding compression method is selected to match the image characteristics maintained in each plane.

25. The apparatus according to Claim 23, wherein the corresponding compression method for said selector plane is a lossless compression method.

26. The apparatus according to Claim 21, wherein said selected color comprises one of a selected color from colors present in said upper plane and an average color of said colors present in said upper plane.

27. The apparatus according to Claim 21, wherein said selected color comprises a color calculated to provide a best compression result of the upper plane.

28. The apparatus according to Claim 21, further comprising:

an adjustment device configured to adjust an overall color level of said upper plane so that said error device does not overflow a number of bits allocated for storage of said lower plane pixels and said error.

29. The apparatus according to Claim 21, further comprising:

a selector device configured to produce a selection mask that identifies how each pixel of the compressed image is stored between the upper and lower planes.

30. An apparatus for reconstructing an image, comprising:

a decompression device configured to decompress planes representing the image; and

a selection device configured to select image data from at least one of the planes and an arithmetic operation between corresponding image sections of at least two of the decompressed planes to reconstruct the image.

31. The apparatus according to Claim 30, wherein said selection device is further configured to weight an amount of said result derived from said upper plane based on a predetermined factor.

32. The apparatus according to Claim 31, wherein said predetermined factor is a value of a selector plane that identifies how much of said result is derived from each of said upper and lower planes.

33. The apparatus according to Claim 32, wherein said value of said selector plane is based on at least one of super-resolution and fine edge detail in corresponding locations of said image.

34. An apparatus for representing an image comprising:

means for dividing the image into plural planes;

means for replacing colors in a plane of the image;

means for feeding an error representing a difference between the replaced color and the replacement color in another plane of the image; and

means for producing a selector mask that,

identifies pixels in each plane that correspond to pixels of the image being represented, and

identifies combinations of pixels of said plural planes that correspond to pixels of the image being represented.

35. The apparatus according to Claim 34, further comprising:

means for compressing each of said plural planes and said selector mask with a compression method matching characteristics of each respective plane and mask.

36. An apparatus for image reconstruction, comprising:

means for reconstructing an image based on pixels selected from one of at least one of plural planes representing the image and an arithmetic operation between corresponding pixels of at least two of said plural planes.

37. The apparatus according to Claim 36, furhter comprising:

means for decompressing said plural planes and at least one selection mask of the image to be reconstructed.

38. The apparatus according to Claim 36, wherein said means for reconstructing includes means for selecting pixels based on said at least one selector mask.

39. A computer readable media, storing instructions, that when loaded into a computer, cause the computer to perform the steps of:

dividing the image into plural planes; and

compressing each plane with a corresponding selected compression method.

40. The computer readable media according to Claim 39, wherein said instructions further cause the computer to perform the steps of:

replacing colors in at least one of said plural planes with at least one replacement color; and

adjusting at least one other of said plural planes, at locations corresponding to the replaced colors, with error values representing a difference between the replaced colors and the corresponding replacement color.

41. The computer readable media according to Claim 40, wherein said instructions further cause the computer to perform the step of:

maintaining a selector plane that identifies one of a plane of said plural planes and a combination of said plural planes that maintain pixels representing the image.

42. The computer readable media and instructions according to Claim 39, wherein:

said step of dividing comprises dividing the image into at least an upper plane and a lower plane; and

said instruction further cause the computer to perform the steps of,

replacing colors in said upper plane with a replacement color; and

adjusting said lower plane at locations corresponding to a respective replaced color with an error value representing a difference between the respective replaced color and the replacement color.

43. A computer readable media, storing instructions, that when loaded into a computer, cause the computer to perform the step of:

selecting pixels of the image to be reconstructed from plural planes of data representing the image.

44. The computer readable media and instructions according to Claim 43, wherein:

said step of selecting, comprises,

selecting pixels of the image from one of a single plane and an arithmetic operation of pixels from more than one of said plural planes.

45. The computer readable media and instructions according to Claim 43, wherein:

said step of selecting comprises the step of,

selecting pixels based on a selector plane that identifies, for each part of the original image, whether the original image information is maintained in an upper plane

or a combination of the upper and at least one lower plane of said plural planes.

46. The computer readable media and instructions according to Claim 43, wherein said instruction further cause the computer to perform the step of:

decompressing said plural planes, including at least an upper plane and a lower plane, from a compressed state.

47. The computer readable media and instructions according to Claim 46, wherein:

said step of selecting comprises,

combining said upper and lower decompressed planes to produce an additive image, and

selecting pixels of the reconstructed image from corresponding pixel locations of one of said decompressed upper plane and said additive image.